

**ARIZONA COLORADO RIVER SHORTAGE  
SHARING WORKSHOP**  
**August 5, 2005**

**Date:** August 8, 2005

**Subject:** Report from Workshop Number 8, August 5, 2005

**Summary:** The eighth workshop on Colorado River Shortages was held on August 5, 2005. Agenda topics included the Reclamation meetings, August 4<sup>th</sup> basin states meeting, "Conservation Before Shortage" proposal, review and discussion of the modeling data from the July 22<sup>nd</sup> meeting and presentation of a proposed shortage implementation strategy. The purpose of the shortage sharing workshops is to develop a stakeholder recommendation to the Director regarding the appropriate volume of shortage reductions in Arizona and a recommendation regarding how shortage will be shared between CAP and post-1968 Colorado River water users.

## 1. Reclamation Shortage Meetings

Reclamation hosted a meeting on July 26<sup>th</sup>, in Henderson Nevada and a second meeting on July 28<sup>th</sup> in Salt Lake City to solicit comments regarding the appropriate content, format, mechanisms and analysis needed to develop management strategies for low reservoir conditions at Lakes Powell and Mead. There were two proposals presented at the meetings. Living Rivers presented the "One-Dam Solution" proposal. The One-Dam Solution proposal advocates the removal of Lake Powell and the utilization of Lake Mead as the principal water storage and distribution facility for deliveries to the lower basin states and as the capture facility for approximately 5 maf annually of surplus water for ground water recharge. Lake Mead would be utilized as a starting point for the transport of sediment around the lower Colorado River. The Conservation Before Shortage (CBS) proposal was prepared by several environmental organizations, and is described in more detail below.

Other comments included a prepared statement from the Basin States supporting the Secretary's process and noting that operational changes will impact the economies of the Basin States. Upper Basin power users suggested that Reclamation seek appropriations to offset power revenue losses, since power revenue is the primary source of funding for many environmental compliance programs. The National Parks Service advocates conjunctive management strategies to maintain equivalent storage in Lakes Powell and Mead for recreational purposes.

## 2. Conservation Before Shortage

Peter Culp briefed the stakeholder group on the Conservation Before Shortage proposal. CBS is intended to increase operational flexibility and system reliability and avoid dramatic reductions in water supply while maintaining power production. The program would also reduce overall water consumption in dry years and decrease the risk of shortage reductions that could disproportionately impact environmental resources downstream of Hoover Dam. The Program

incorporates increasing, tiered reductions in water supply based on trigger elevations in Lake Mead. The Program would institute market-based reductions in water use. Program funding would come from federal appropriations and a surcharge applied to all Lower Basin water users and consumers of power generated at the Hoover Dam. Model results indicate that CBS has little effect on Powell elevations.

### 3. August 4<sup>th</sup> Basin States Meeting

The technical workgroup has been investigating conjunctive management concepts that are designed to achieve two goals, minimize the length and severity of shortages to the lower basin and minimize the likelihood of a call on the upper basin. The states discussed how Lake Powell storage could be used to augment storage at Lake Mead. There are barriers to implementation of a conjunctive management plan; all states would have to agree before such a plan could be implemented.

Wyoming, New Mexico and Colorado have challenged Nevada's proposed development of the Virgin River water. The Wyoming State Engineer's Office has commented that the scope of an Environmental Impact Statement to analyze the impact of a pipeline easement over Bureau of Land Management lands, must also analyze the impacts associated with the proposed withdrawal of over 100,000 af of water from the Virgin River basin.

### 3. Model Results Discussion

Three operational scenarios, and three volume shortage reductions (300,000, 500,000 and 800,000 af) were presented for comparison. The "70R" strategy is how Lake Mead was operated before the Interim Surplus Guidelines were adopted, and was presented as a "baseline" operational strategy. Current operations were presented under the "Interim Surplus Guidelines (ISG) through 2016 strategy," and for sensitivity analysis purposes ISG through 2030 was also modeled. Generally, the 70R strategy results in the lowest probability of shortage, the ISG through 2016 the second lowest and the ISG through 2030 the highest probability of shortage.

There are two aspects of the model results presented at the July 22<sup>nd</sup> meeting. The first relates to the probability of shortage. The probability of shortage is strongly influenced by Upper Basin water demand. Three Upper Basin demand schedules were presented. The 4.8 maf Arizona Water Banking Authority (AWBA) demand schedule is a reasonable build-up demand schedule and accurately reflects the observed demand in the Upper Basin over the last several years. **The stakeholders agreed to use the 4.8 AWBA Upper Basin demand schedule assumptions for this process, although in some instances a high (5.4 maf) Upper Basin demand schedule may be presented for comparative purposes.**

The stakeholders' decision regarding the recommended volume of shortage will also influence the probability of shortage in the future. Shortage conditions will occur more often if the recommended shortage volume is 300,000 af; shortage conditions will occur less frequently if the recommended shortage volume is 800,000 af.

Regardless of the probability of shortage occurring, the second aspect of the model results relate to how Arizona will implement a shortage when it occurs. According to the model results low

volume shortage amounts can increase the number of consecutive shortage years, and also increase the probability of exceeding the planned shortage amount to protect the Southern Nevada Water Authority intake in Lake Mead. Higher volume shortage reductions slightly decrease the number of consecutive shortage years and the probability of exceeding a planned shortage amount.

A volume-based shortage recommendation offers less certainty with regard to planning for upcoming shortage conditions. Notification of shortage would occur via the Annual Operating Plan (AOP) process and Reclamation's 24-month operations study. The AOP is usually available in June, and covers the upcoming calendar year; the 24-month study is updated monthly. A tiered implementation strategy was presented, which institutes staged shortage reductions of 200,000, 400,000 and 600,000 af, for Mead reservoir elevations between 1100 and 1000 feet. One advantage of the tiered implementation strategy is that water users can monitor reservoir elevations throughout the year, and can plan for specified volume reductions in advance.

#### 4. Model Runs for August 12<sup>th</sup>

The stakeholders requested the following model runs for the August 12<sup>th</sup> meeting:

- a) Tiered shortage reductions of 300,000, 500,000 and 800,000 af (will be run with 4.8 AWBA Upper Basin demand and 5.4 Upper Basin Demand)
- b) For both tiered strategies, probability of exceeding planned shortage amounts
- c) Average exceedance of planned shortage volume
- d) No preemptive shortage – let Lake Mead protect elevations dictate shortage volume